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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,099	07/22/2003	Risto Ronkka	460-008439-US (C01)	8774

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EXAMINER
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OPIE, GEORGE L

ART UNIT	PAPER NUMBER
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2194

DATE MAILED: 05/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/625,099

Applicant(s)

RONKKA ET AL.

Examiner

George L. Opie

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 December 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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### DETAILED ACTION

This Office Action is responsive to the Amendment dated 15 December 2004, in which claims 1-3, 11 and 13 were amended.

Applicant's Terminal Disclaimer was received 20 December 2004, and upon review, the Office has deemed it acceptable. Thus, the Terminal Disclaimer has been entered in the Official record for the instant case.

1. Request for copy of Applicant's response on floppy disk:  
Please help expedite the prosecution of this application by including, along with your amendment response in paper form, an electronic file copy in WordPerfect, Microsoft Word, or in ASCII text format on a 3½ inch IBM format floppy disk. Please include all pending claims along with your responsive remarks. Only the paper copy will be entered -- your floppy disk file will be considered a duplicate copy. Signatures are not required on the disk copy. The floppy disk copy is not mandatory, however, it will help expedite the processing of your application. Your cooperation is appreciated.

2. Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Friedrich et al. (EP0360135) in view of the Admitted Prior Art (APA). Note: the Friedrich reference was provided by Applicant's Information Disclosure Statement.

As to claim 1, Friedrich (abstract) teaches a communication device comprising two operating systems (time-sharing system and real-time OS) the first operating system relates to running of mobile station functions (real-time OS ... programs) and the second operating system relates to running data processing functions (timesharing OS with ... general data processing). The Friedrich reference is silent as to the OS threads; however, the use of threads by the operating

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systems would have been inherent in the OS architectures, as threads are fundamental "paths of execution" employed by OS processes. Friedrich does not explicitly disclose the user interface, mobile station functions and data processing functions.

The APA (page 7) teaches a "thread can comprise functions related to one or several processes, and . . . execution of the threads is controlled by a scheduler of the operating system." The APA (page 3) also makes known that "electronic devices have been developed having both a data processor and telecommunication device in combination." In particular, the APA (page 3) describes the "Nokia 9000. . . having both data processing operations and mobile station operations." For the user to monitor and interact with the foregoing functions, the Nokia 9000 Communicator comprises interfaces corresponding to its various features. It would have been obvious to combine the APA's teachings with Friedrich's dual OS operations because the communication device could "utilize the results of earlier product development . . . in a single processor solution" (page 3) and thus, the integrated system would economize energy, efficiently executing programs for both the mobile station and data processing.

As to claim 2, Friedrich teaches that "[e]ach interrupt is centrally detected, checked to see which of the two operating systems it belongs to and processed . . ." which corresponds to the means for thread selection responsive to an interrupt, including at least one at least partly common interrupt handler with its associated operations for the two operating systems.

As to claim 3, note the discussion of claim 1 supra. The limitations of claim 3 are functionally equivalent to the claim 1 limitations but for the addition of a second user interface. From the teachings of Friedrich and the APA, it would have been obvious for one skilled in the art to provide a second interface in the communication device to assist with display/interaction of the various programs relative to the mobile station and data processing functions; in other words, the key controls and I/O screen would be configured with different interfaces in a fashion commensurate with the features/parameters of each program to ergonomically optimize use of its sundry functions.

As to claims 4-5, the APA (page 3) teaches the "Nokia 9000 Communicator, which is a portable device . . . having both data processing operations and mobile station operations." The Nokia 9000 Communicator has the telephone and PDA interfaces as recited.

As to claim 6, the APA (page 7) teaches the "task of the operating system" includes switching from "between" one context to a second context or thread when the one context has no executing threads. This OS task management

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discussion references the basic principles in OS process controlling, and from this it would have been obvious for one skilled in the art to provide the means for moving from the first OS to the second OS when no thread of the first OS is running, because the inactive state of tasks in an OS would be a logical condition for switching/utilizing the processing capabilities to another task, and thus more fully occupying/optimizing the processor resources.

As to claim 7, Friedrich (abstract) teaches "the realtime operating system is activated in the occurrence of a real-time interrupt" which corresponds to the means for moving from the execution of the second operating system to run the first operating system when an interrupt to the processor affects the running of at least one thread under the first operating system.

As to claim 8, Friedrich (abstract) teaches that a real time OS is one of the two operating systems.

As to claim 9, the APA (page 7) teaches the processor modes substantially as claimed. The APA goes on to describe how some operating systems, processes and applications are implemented using different modes, and it references the privileges and characteristics that are used to establish which OS processes and programs should operate in the various modes, which would have made obvious the selection of modes for operation of OS processes and the interrupt handler.

As to claim 10, the APA (page 7) teaches that [o]ne thread can comprise functions related to the execution of one or several processes" and thus, it would have been obvious to provide the limitation that the first group of threads has one thread comprising the second operating system.

As to claim 11, note the discussion of claim 3 supra. The limitations of claim 11 are functionally equivalent to the claim 3 limitations but for the addition of a second processor to run the second OS. The APA clearly meets this additional limitation in its description of the Nokia 9000, stating that it provides "the data processing portion with a processor of its own and an operating system of its own therein, and likewise, the mobile station embodiments have a processor of their own and an operating system of their own." It would have been obvious to employ the two processor scheme with the Friedrich/APA system because the dual processor package could "utilize a previously developed product" as the processor-based applications would readily run on their respective processors sans much modification of the intended applications, thereby facilitating installation/porting of developed programs.

As to claim 12, see the discussion of claim 4 supra.

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As to claim 13, Friedrich teaches that "[e]ach interrupt is centrally detected, checked to see which of the two operating systems it belongs to and processed . . ." which corresponds to the means for thread selection responsive to an interrupt, including at least one at least partly common interrupt handler with its associated operations for the two operating systems.

As to claims 14-18, see the discussions of claims 5-9 respectively.

4. The prior art of record and not relied upon is considered pertinent to the applicant's disclosure. Specifically, the below reference(s) will also have relevancy to one or more elements of the Applicant's claimed invention as follows:

U.S. Patent No. 6,260,075 to Cabrero et al. which teaches the coordinated execution of two different operating systems with respective threads;

U.S. Patent No. 6,125,411 to Sato which teaches the two operating systems running together in a single computer;

U.S. Patent No. 5,974,439 to Bollella which teaches the administration of a two OS system using program priority for task/thread management;

U.S. Patent No. 5,515,538 to Kleiman which teaches "common interrupt code" to minimize context switching;

U.S. Patent No. 5,490,275 to Sandvos et al. which teaches a structured mechanism for handling interrupts that are common among the different systems in a communications device; and,

U.S. Patent No. 5,301,277 to Kanai which teaches the use of one partly common interrupt handler for two different operating systems.

## **5. Response to Applicant's Arguments:**

Applicant argues (claims 1, 3 and 11) that the combination of Friedrich and the APA does not meet the one processor for running two operating systems. Contrary to Applicant's contention, the prior art does disclose "two operating systems in a single processor", APA page 3, which clearly reads-on the limitation of "one processor to run at least two operating systems" as broadly claimed. Plainly, the APA provides the prior art teachings that render obvious the recitation of one processor running two OSs. The APA's prior art teachings are not limited to the Nokia 9000 as the pedagogical basis for the processor that runs more than one OS, because the APA clearly supplies more/other references describing these claimed features. Furthermore, the Friedrich system refers to a data processor in the singular, which also would meet the limitation of one processor as claimed. Friedrich's processor runs two operating systems simultaneously, and thus, it clearly reads-on the one processor to run at least two operating systems.

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The Friedrich prior art teachings make obvious the currently claimed communication device sans explicitly naming the user interface, mobile station and data processing functions. The APA's prior art, however, specifically spells-out these terms. Hence, the APA's teachings simply were cited to name the aforementioned features that were obvious extensions of Friedrich's real-time OS and "time-sharing" OS. Despite Friedrich's brevity, the referenced teachings provide the functions to serve the claimed features; in other words, the identified real-time OS would have obviously performed mobile station functions and the time-sharing would likewise relate to the data processing functions. It should be noted that the claim only states that "the first operating system relates to running mobile station functions" and the second OS "relates to running of data processing functions." The scope of the terms of "relates to running ... functions" clearly transcends the more narrow scope that Applicant attempts to impute through argument. The breadth of these terms is such that Friedrich's OS teachings read-on the recited relations. Friedrich's real-time OS represents a first OS that is used for handling or "relating to" mobile station functions and the time-sharing OS is a second OS relating to data processing functions. Therefore, the claimed operating systems "relating to" various functions as presently presented fail to distinguish over the prior art.

During patent examination, the pending claims must be "given their broadest reasonable interpretation consistent with the specification." *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). Applicant always has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969)

Limitations appearing in the specification but not recited in the claim are not read into the claim. *E-Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1369, 67 USPQ2d 1947, 1950 (Fed. Cir. 2003) (claims must be interpreted "in view of the specification" without importing limitations from the specification into the claims unnecessarily). *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969).

In considering the communication device and two OS recitations, it is noted that Applicant uses terminology that has broad meaning in the art, and thus requires a broad interpretation of the claims in determining patentability of the disclosed invention. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Applicant should set forth claims in language that clearly, distinctly, unambiguously and uniquely define the invention.

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*See also In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (1989) "During patent examination the pending claims must be interpreted as broadly as their terms reasonably allow.... The reason is simply that during patent prosecution when claims can be amended, ambiguities should be recognized, scope and breadth of language explored, and clarification imposed.... An essential purpose of patent examination is to fashion claims that are precise, clear, correct, and unambiguous. Only in this way can uncertainties of claim scope be removed, as much as possible, during the administrative process."

In light of the references of record, the communication device with one processor for running two operating systems, in the manner recited in the pending claims does not constitute a non obvious improvement over the prior art.

Applicant's arguments dated 15 December 2004, have been fully considered but they are not deemed to be persuasive. For the reasons detailed above, the rejections are maintained under **35 U.S.C. § 103** as set forth supra.

**6. THIS ACTION IS MADE FINAL.**

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

**7. Contact Information:**

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system.

Status information for published applications may be obtained from either Private-PAIR or Public-PAIR.

Status information for unpublished applications is available through Private-PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>.



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Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

All responses sent by U.S. Mail should be mailed to:

**Commissioner for Patents**

**PO Box 1450**

**Alexandria, VA 22313-1450**

Hand carried responses should be delivered to the *Customer Service Window* (Randolph Building, 401 Dulany Street, Alexandria, Virginia 22314) and, if submitting an electronic copy on floppy or CD, to expedite its processing, please notify the below identified examiner prior to delivery, so that the Applicant can "handoff" the electronic copy directly to the examiner.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

All OFFICIAL faxes will be handled and entered by the docketing personnel. The date of entry will correspond to the actual FAX reception date unless that date is a Saturday, Sunday, or a Federal Holiday within the District of Columbia, in which case the official date of receipt will be the next business day. The application file will be promptly forwarded to the Examiner unless the application file must be sent to another area of the Office, e.g., Finance Division for fee charging, etc.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist at **(571) 272-2100**.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Opie at (571) 272-3766 or via e-mail at *George.Opie@uspto.gov*. Internet e-mail should not be used where sensitive data will be exchanged or where there exists a possibility that sensitive data could be identified unless there is an express waiver of the confidentiality requirements under 35 U.S.C. 122 by the Applicant. Sensitive data includes confidential information related to patent applications.



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